Empowered by Innovation NEC

NEC EXPRESS5800/R110d-1E
Configuration Guide

Introduction

This document contains product and configuration information that will enable you to configure your system. The guide will ensure fast and proper configuration of your NEC EXPRESS5800 server.

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Technical Specification

Key Features

- High performance with the latest Intel® Xeon® processor E3-1200 series
- Up to 32 GB of high speed DDR3-1333 memory
- High energy efficiency with intelligent fan control, power capping feature and 80 PLUS® Gold power supply
- Full manageability by integrated EXPRESSSCOPE Engine 3

Specification

3.5-inch Drive Model

Model		**R110d-1E**		
Part Number		N8100-1744F		
Processor	**Type**	Intel® Pentium® processor G630	Intel® Xeon® processor E3-1220	Intel® Xeon® processor E3-1270
	Clock speed	2.70 GHz	3.10 GHz	3.40 GHz
	Number of Processor	1		
	Cache	3 MB	8 MB	8 MB
	Cores and Threads	2C / 2T	4C / 4T	4C / 8T
Chipset		Intel® C204 Chipset		
Memory	**Type**	DDR3-1333 ECC Unbuffered DIMM		
	Standard Capacity	0 GB		
	Maximum Capacity	32 GB (4 x 8 GB)		
Internal Storage	**Standard Capacity**	0 GB		
	Maximum Capacity	SATA : 12 TB (4 x 3 TB)		
	Disk Controller	SATA : 3 Gb/s (Integrated)		
	RAID	SATA : [1 2] RAID 0/1/10 (Standard), RAID 5/6 (Optional)		
	Hot Plug	Supported		
	Optical Disk Drive	Optional		
	Optical Drive Bays [free]	1 [1]		
	Disk Drive Bays [free]	4 [4]		
Expansion Slots [free]		Total: 2 slots available 1 [1] x PCIe 2.0 x8 (x16 connector) 1 [1] x PCIe 2.0 x8 (x8 connector)		
Video Controller (VRAM)		Integrated in Server Management Controller (32MB)		
Interfaces		1 x VGA (15-pin mini D-sub,1x rear) 1 x Serial (9-pin mini D-sub, RS232-C, Serial A, 1 x rear) 8x USB2.0 (2 x front, 4 x rear, 2 x internal) 2x 1000BASE-T LAN connector (1000BASE-T / 100BASE-TX / 10BASE-T, RJ-45, 2 x rear) 1 x Management LAN connector (100BASE-TX / 10BASE-T, RJ-45, 1 x rear)		
Server Management		EXPRESSSCOPE Engine 3		
System Fan		Standard		
Power Supply		1 x 400 Watt 80 PLUS® Gold certified non-Hot plug PSU 100-240 VAC ± 10% 50 / 60 Hz ± 3 Hz		

Model		R110d-1E		
Power Consumption	(Max. Config, Idling)	108 VA / 102 Watt	109 VA / 105 Watt	109 VA / 106 Watt
	(Max. Config, Operating)	161 VA / 159 Watt	223 VA / 222 Watt	281 VA / 270 Watt
Acoustical Noise (Sound Pressure Level) [3]	Minimum Config.	42.3 dB	39.3 dB	39.3 dB
	Maximum Config.	43.1 dB	48.8 dB	48.8 dB
Dimensions (W x D x H)		444.0 x 615.2 x 43.6 mm / 17.5 x 24.2 x 1.7 in (1U)		
Weight (Minimum / Maximum)		10 kg / 18 kg, 22.05 lbs. / 39.68 lbs.		
Temperature, Relative Humidity (non-condensing)		Operating: 10° to 35° C / 50° to 95° F, 20 to 80% Non-Operating: -10° to 55° C / 14° to 131° F, 20 to 80%		
Regulatory and Safety		FCC, CE, BSMI, CCC, UL, CB, RoHS, WEEE		
Pre-installed Operating System		-		
Operating Systems		Microsoft® Windows Server® 2003 R2, Standard Edition SP2 or later Microsoft® Windows Server® 2003 R2, Enterprise Edition SP2 or later Microsoft® Windows Server® 2003 R2, Standard x64 Edition SP2 or later Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition SP2 or later Microsoft® Windows Server® 2008 Standard Microsoft® Windows Server® 2008 Standard (x64) Microsoft® Windows Server® 2008 Enterprise Microsoft® Windows Server® 2008 Enterprise (x64) Microsoft® Windows Server® 2008 R2 Standard Microsoft® Windows Server® 2008 R2 Enterprise Red Hat Enterprise Linux 5.6 or later [4] Red Hat Enterprise Linux 5.6 or later (EM64T) [4] Red Hat Enterprise Linux 6.0 or later (x86) [4] Red Hat Enterprise Linux 6.0 or later (x86_64) [4]		

1 On-board SATA Controller does not support RAID 10 configured with 2TB and 3TB HDDs.

2 The on-board SATA RAID controller is not supported on Linux operating systems.

3 Noise emission was measured in accordance with ISO 7779. The actual value may vary by the operating environment.

4 For Linux support, contact our sales representative or go to the NEC website at: http://www.nec.com/global/prod/express/linux/index.html

2.5-inch Drive Model

Model		R110d-1E		
Part Number		N8100-1745F		
Processor	**Type**	Intel® Pentium® processor G630	Intel® Xeon® processor E3-1220	Intel® Xeon® processor E3-1270
	Clock Speed	2.70 GHz	3.10 GHz	3.40 GHz
	Number of Processor	1/1		
	Cache	3 MB	8 MB	8 MB
	Cores and Threads	2C / 2T	4C / 4T	4C / 8T
Chipset		Intel® C204 Chipset		
Memory	**Type**	DDR3-1333 ECC Unbuffered DIMM		
	Standard Capacity	0 GB		
	Maximum Capacity	32 GB (4 x 8 GB)		
Internal Storage	**Standard Capacity**	0 GB		
	Maximum Capacity	SAS : 5.4 TB (6 x 900 GB) SATA : 6 TB (6 x 1 TB) SSD : 600 GB (6 x 100 GB)		
	Disk Controller	SATA : 3 Gb/s (Integrated) SAS : 6 Gb/s (Optional)		
	RAID	SATA : [1] RAID 0/1/10 (Standard), RAID 5/6 (Optional) SAS : RAID 0/1/10/5/6 (Optional)		
	Hot Plug	Supported		
	Optical Disk Drive	Optional		
	Optical Drive Bays [free]	1 [1]		
	Disk Drive Bays [free]	6 [6]		
Expansion Slots [free]		Total: 2 slots available 1 [1] x PCIe 2.0 x8 (x16 connector) 1 [1] x PCIe 2.0 x8 (x8 connector)		
Video Controller (VRAM)		Integrated in Server Management Controller (32MB)		
Interfaces		1 x VGA (15-pin mini D-sub,1x rear) 1 x Serial (9-pin mini D-sub, RS232-C, Serial A, 1 x rear) 8x USB2.0 (2 x front, 4 x rear, 2 x internal) 2x 1000BASE-T LAN connector (1000BASE-T / 100BASE-TX / 10BASE-T, RJ-45, 2 x rear) 1 x Management LAN connector (100BASE-TX / 10BASE-T, RJ-45, 1 x rear)		
Server Management		EXPRESSSCOPE Engine 3		
System Fan		Standard		
Power Supply		1 x 400 Watt 80 PLUS® Gold certified non-Hot plug PSU 100-240 VAC ± 10% 50 / 60 Hz ± 3 Hz		
Power Consumption	**(Max. Config, Idling)**	107 VA / 102 Watt	123 VA / 119 Watt	125 VA / 120 Watt
	(Max. Config, Operating)	149 VA / 146 Watt	236 VA / 233 Watt	261 VA / 260 Watt
Acoustical Noise (Sound Pressure Level) [2]	**Minimum Config.**	42.3 dB	39.3 dB	39.3 dB
	Maximum Config.	43.1 dB	48.8 dB	48.8 dB
Dimensions (W x D x H)		444.0 x 615.2 x 43.6 mm / 17.5 x 24.2 x 1.7 in (1U)		
Weight (Minimum / Maximum)		10 kg / 18 kg, 22.05 lbs. / 39.68 lbs.		

Model	R110d-1E
Temperature, Relative Humidity (non-condensing)	Operating: 10° to 35° C / 50° to 95° F, 20 to 80% Non-Operating: -10° to 55° C / 14° to 131° F, 20 to 80%
Regulatory and Safety	FCC, CE, BSMI, CCC, UL, CB, RoHS, WEEE
Pre-installed Operating System	-
Operating Systems	Microsoft® Windows Server® 2003 R2, Standard Edition SP2 or later Microsoft® Windows Server® 2003 R2, Enterprise Edition SP2 or later Microsoft® Windows Server® 2003 R2, Standard x64 Edition SP2 or later Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition SP2 or later Microsoft® Windows Server® 2008 Standard Microsoft® Windows Server® 2008 Standard (x64) Microsoft® Windows Server® 2008 Enterprise Microsoft® Windows Server® 2008 Enterprise (x64) Microsoft® Windows Server® 2008 R2 Standard Microsoft® Windows Server® 2008 R2 Enterprise Red Hat Enterprise Linux 5.6 or later [3] Red Hat Enterprise Linux 5.6 or later (EM64T) [3] Red Hat Enterprise Linux 6.0 or later (x86) [3] Red Hat Enterprise Linux 6.0 or later (x86_64) [3]

[1] The on-board SATA RAID controller is not supported on Linux operating systems.

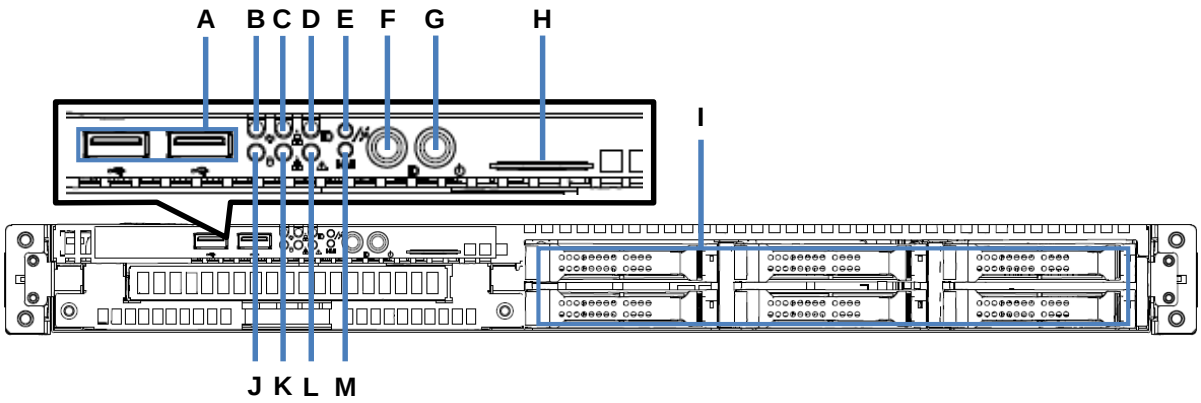
[2] Noise emission was measured in accordance with ISO 7779. The actual value may vary by the operating environment.

[3] For Linux support, contact our sales representative or go to the NEC website at: http://www.nec.com/global/prod/express/linux/index.html

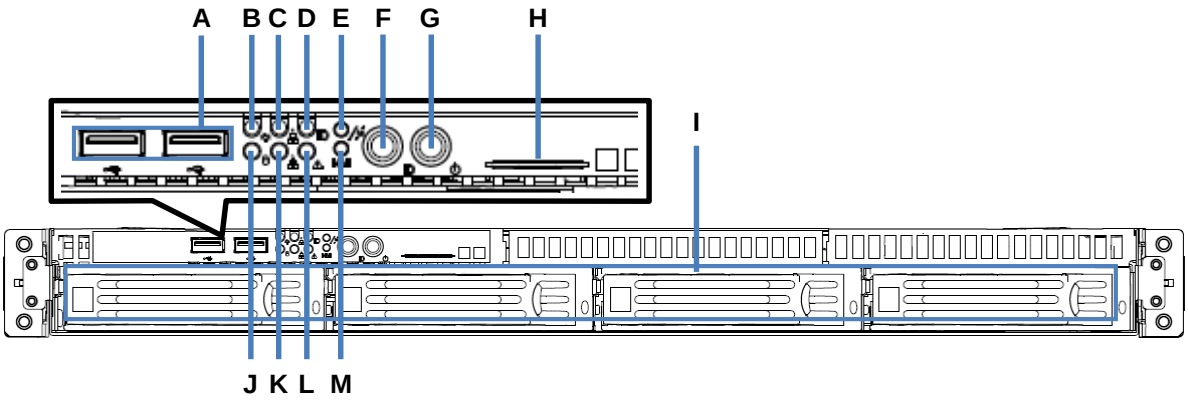
External Views

Front and Rear Views

Front View for 2.5-inch Drive Model

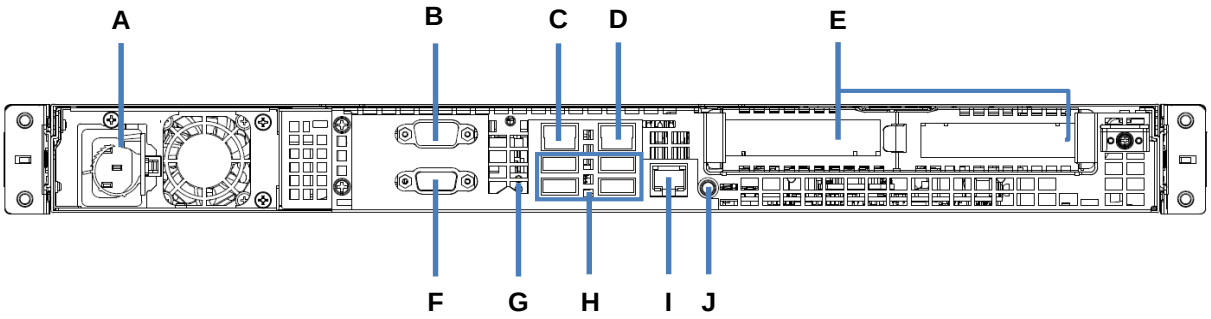


Front View for 3.5-inch Drive Model



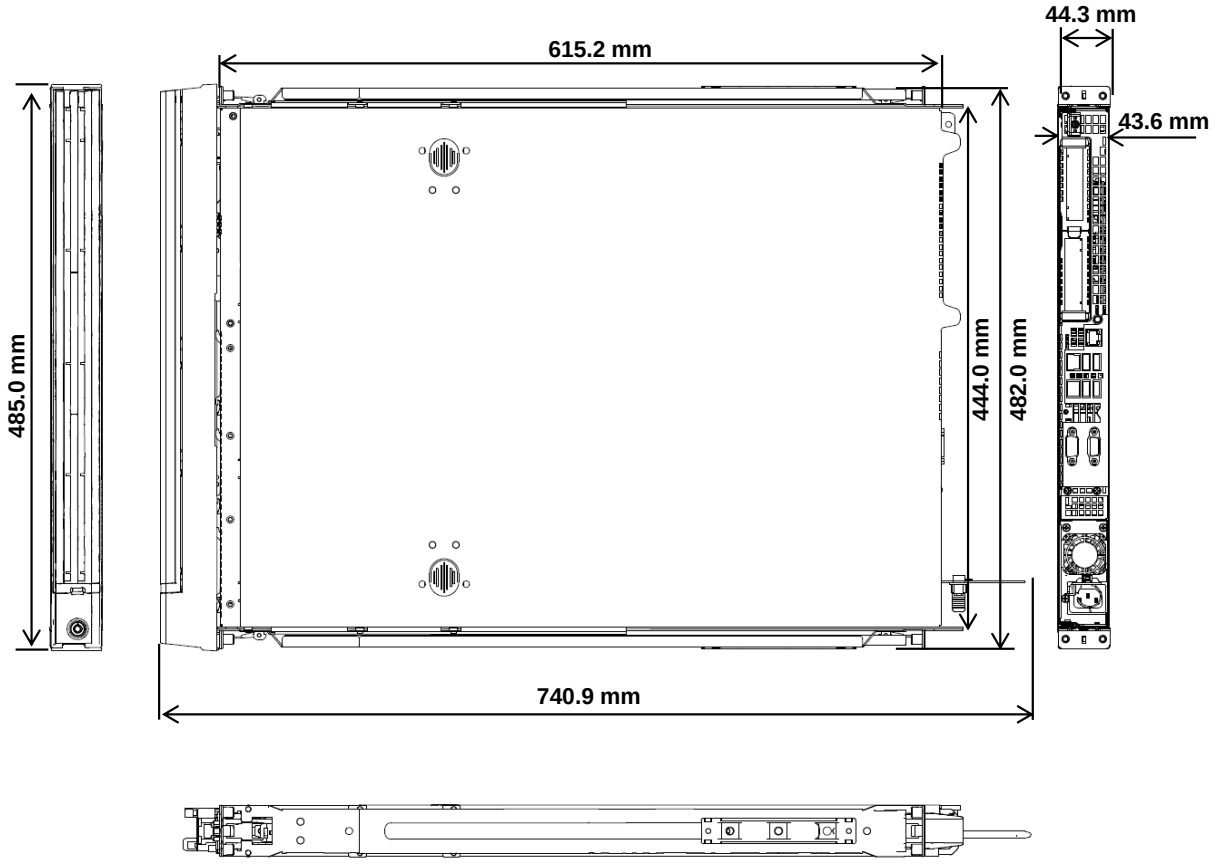
Legend			
A.	USB Connectors	**H.**	Pull-out Tab
B.	Power LED	**I.**	Drive Bays
C.	Data LAN 1 Activity LED	**J.**	Hard Drive Activity LED
D.	UID LED	**K.**	Data LAN 2 Activity LED
E.	BMC Reset Switch	**L.**	System Status LED
F.	UID LED Button	**M.**	Dump (NMI) Switch
G.	Power Button		

Rear View



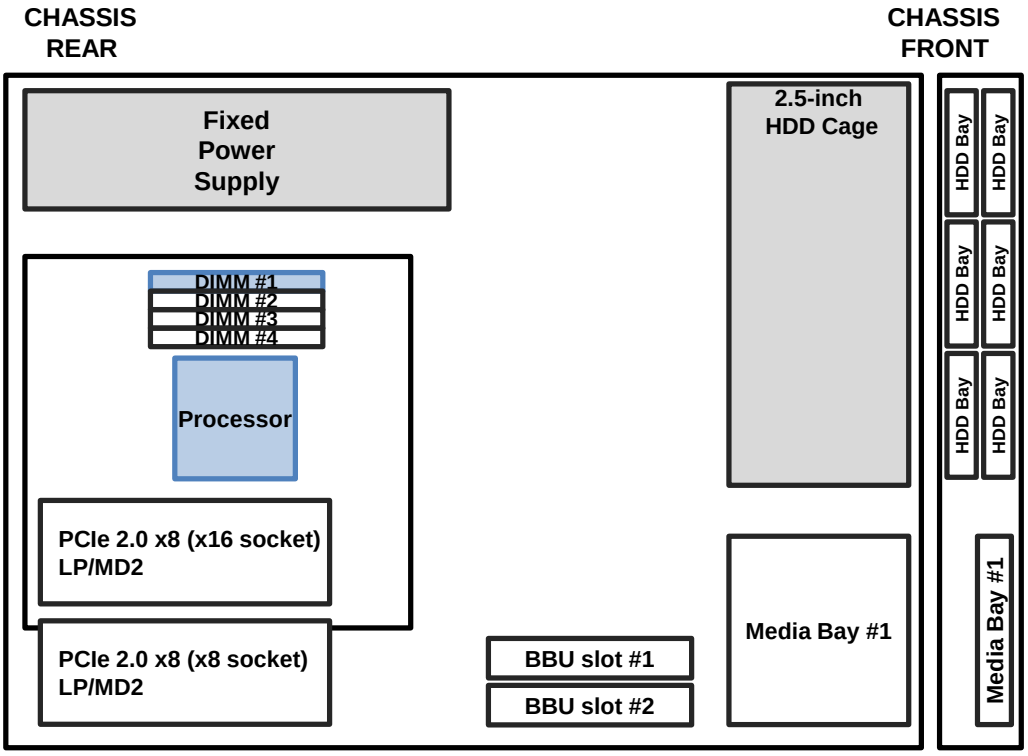
Legend			
A.	AC Inlet	**F.**	VGA Connector
B.	Serial Port Connector	**G.**	Power LED
C.	Data LAN 1 Connector	**H.**	USB Connectors
D.	Data LAN 2 Connector	**I.**	Management LAN Connector
E.	PCI Slots	**J.**	UID LED / Button

Dimensions (mm)



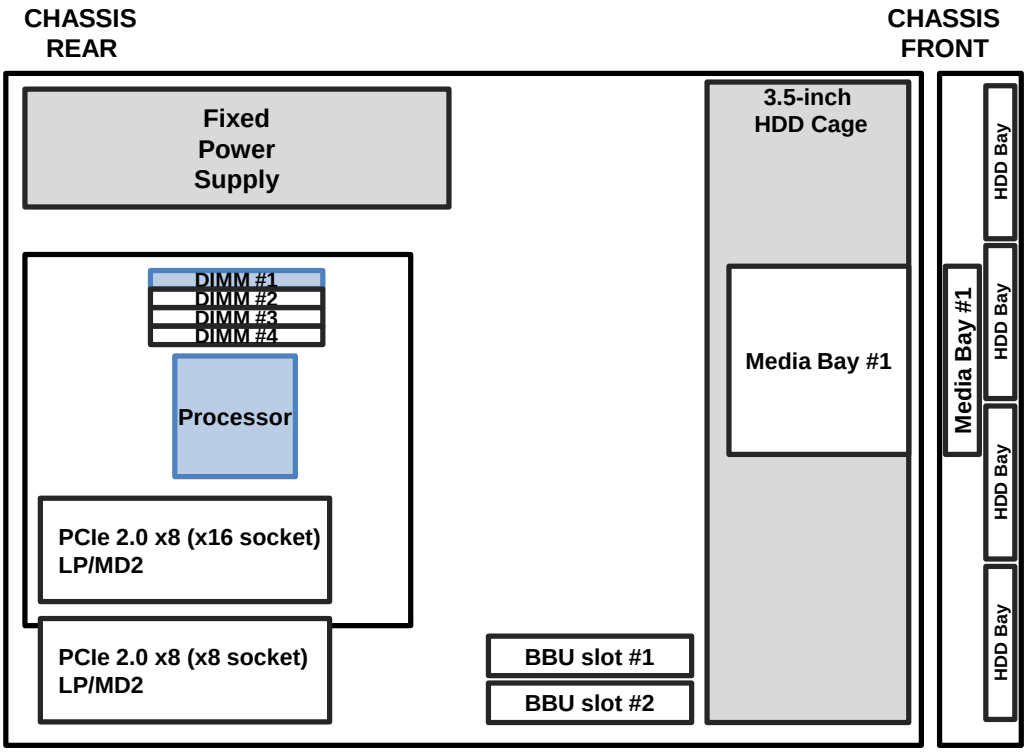
Configuration Diagram

2.5-inch Drive Model



Legend: Minimum requirement components Standard components

3.5-inch Drive Model



Legend: Minimum requirement components Standard components

Server Configuration

1 Base Models

Product Name / Description	Part Number
NEC EXPRESS5800/R110d-1E Server no processor, no RAM, no 3.5-inch HDD Including: 3.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1744F
NEC EXPRESS5800/R110d-1E Server no processor, no RAM, no 2.5-inch HDD Including: 2.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1745F

NOTE:

- The base model must be ordered with a processor kit.

2 Processor

Available sockets: 1

Product Name / Description	Part Number
Processor Kit (2C/G630) Intel® Pentium® Processor G630 (2.70GHz / 2C-2T / 3MB)	N8101-529F
Processor Kit (4C/E3-1220) Intel® Xeon® Processor E3-1220 (3.10 GHz / 4C-4T / 8 MB)	N8101-506F
Processor Kit (4C/E3-1270) Intel® Xeon® Processor E3-1270 (3.40 GHz / 4C-8T / 8 MB)	N8101-507F

NOTE:

- One processor kit from above must be installed.
- The processor kit must be ordered with the base model.

3 Memory

Available slots: 4

Product Name / Description	Part Number
2GB Memory Kit 2GB (1x 2 GB) DDR3-1333 ECC Unbuffered DIMM	N8102-416F
4GB Memory Kit 4GB (1x 4 GB) DDR3-1333 ECC Unbuffered DIMM	N8102-417F
8GB Memory Kit 8GB (1x 8 GB) DDR3-1333 ECC Unbuffered DIMM	N8102-418F

NOTE:

- Minimum one memory kit must be installed.
- It is recommended to install two identical memory kits for dual-channel symmetric configuration to increase memory transfer speed.
- Actual DIMM speed is set to 1066 MHz when you choose Pentium Processor.

Maximum Available Memory

See the table below for the maximum memory size that you can actually use on your system.

The maximum available memory is less than the maximum physical memory supported by your system because some chipsets require PCI resource space of about 750MB. PCI resource requirements vary depending on the type and the number of PCI cards you are using.

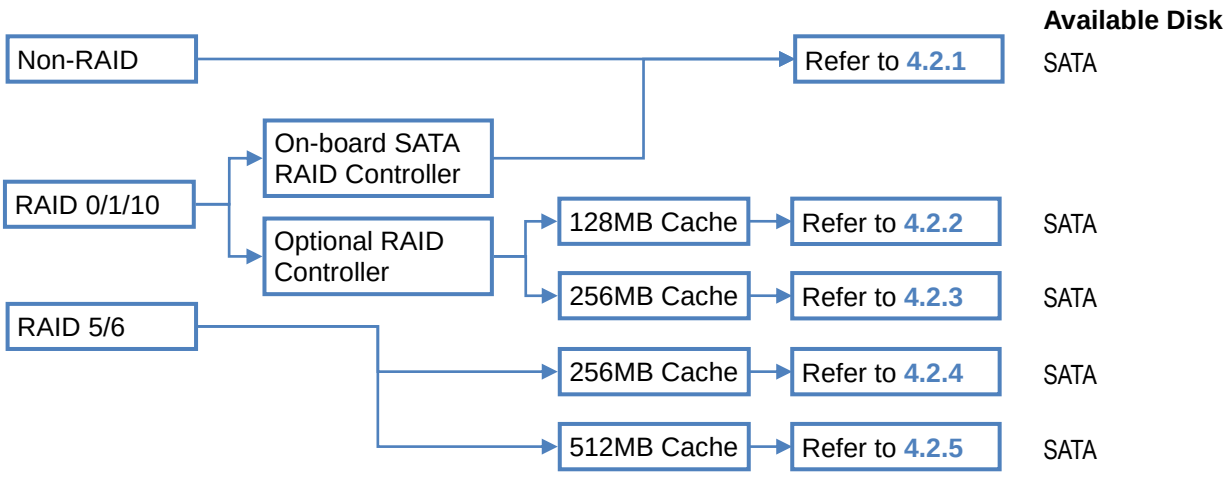
Maximum Memory Size Supported by OS		Maximum Available Memory
4 GB	Microsoft Windows Server 2003 R2, Standard Edition Microsoft Windows Server 2008 Standard	**4 GB (HW-DEP enabled)** **App. 3.3 GB (HW-DEP disabled)**
32 GB	Microsoft Windows Server 2003 R2, Standard x64 Edition Microsoft Windows Server 2008 Standard (x64) Microsoft Windows Server 2008 R2 Standard (x64)	**32 GB**
64 GB	Microsoft Windows Server 2003 R2, Enterprise Edition Microsoft Windows Server 2008 Enterprise	**32 GB**
1 TB	Microsoft Windows Server 2003 R2, Enterprise x64 Edition	**32 GB**
2 TB	Microsoft Windows Server 2008 Enterprise (x64) Microsoft Windows Server 2008 R2 Enterprise (x64)	**32 GB**
16 GB	Red Hat Enterprise Linux 5 Red Hat Enterprise Linux 6	**16 GB**
256 GB	Red Hat Enterprise Linux 5 (EM64T)	**32 GB**
2 TB	Red Hat Enterprise Linux 6.0 (x86_64)	**32 GB**

4 Internal Hard Disk Drives

4.1 RAID Configuration

Refer to the section in accordance with your disk form factor and RAID configuration.

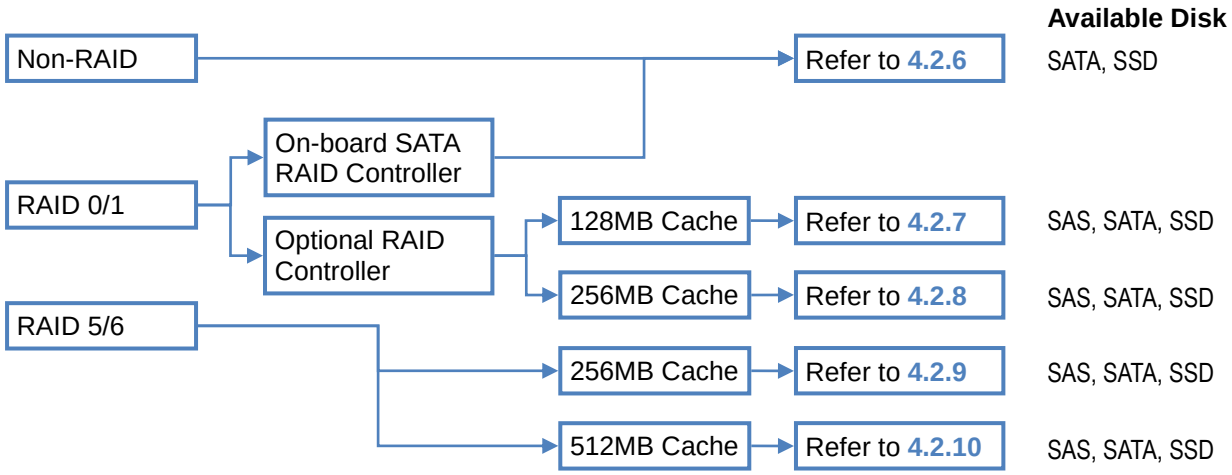
4.1.1 3.5-inch Drive



NOTE:

- On-board SATA RAID controller is supported only on Windows operating systems. An optional RAID controller is required to configure RAID array for other operating systems.
- On-board SATA RAID Controller does not support RAID 10 configured with 2TB and 3TB HDDs.
- Hot plug insertion/removal is not supported with the on-board SATA non-RAID controller.
- All hard drives within a RAID array should be of the same capacity.
- An optional RAID controller occupies one PCI slot.

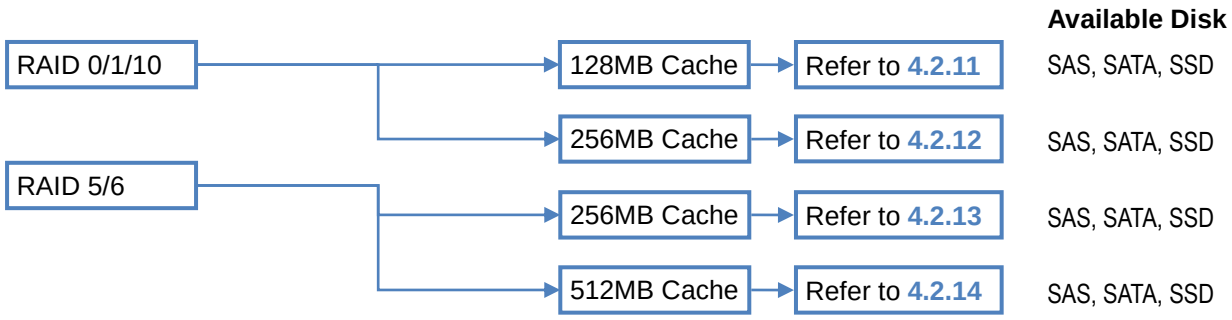
4.1.2 Up to four 2.5-inch Drive



NOTE:

- On-board SATA RAID controller is supported only on Windows operating systems. An optional RAID controller is required to configure RAID array for other operating systems.
- Hot plug insertion/removal is not supported with the on-board SATA non-RAID controller.
- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported.
- An optional RAID controller occupies one PCI slot.

4.1.3 Up to six 2.5-inch Drive



NOTE:

- An optional RAID controller occupies one PCI slot.
- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported.

4.2 Internal Drive Configuration

4.2.1 3.5-inch Drive with On-board SATA Controller

Category	Product Name / Description	Part Number
Storage Controller	**On-board SATA Controller** 4 x SATA ports, RAID 0/1 capable	(Standard)
Cable	**Internal SATA Cable** 1x SATA to 1x SATA, 4 sets	(Standard)
HDD Cage	**3.5-inch HDD Cage** 4 x 3.5-inch hot plug hard drive bays	(Standard)
HDD **4 slots available**	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-285
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-279
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-280
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-282
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-283
	3TB HDD 1 x 3 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-336

NOTE:

- On-board SATA RAID controller is supported only on Windows operating systems. An optional RAID controller is required to configure RAID array for other operating systems.
- On-board SATA RAID Controller does not support RAID 10 configured with 2TB and 3TB HDDs.
- Hot plug insertion/removal is not supported with the on-board SATA non-RAID controller.
- 3 TB HDDs are not supported with the on-board SATA non-RAID controller.
- All hard drives within a RAID array should be of the same capacity.

4.2.2 3.5-inch Drive with RAID 0/1 Controller with 128 MB Cache

Category	Product Name / Description	Part Number
Storage Controller **Required**	**RAID Controller (128MB, RAID 0/1)** Promise SuperTrak TX8760T-128 RAID 0/1/10, 128MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-128
RAID BBU **Recommended**	**RAID Battery Backup Unit** for Promise SuperTrak EX8760T and EX8768	N8103-140
Cable **Required**	**Internal SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
HDD Cage	**3.5-inch HDD Cage** 4 x 3.5-inch hot plug hard drive bays	(Standard)
HDD **4 slots available**	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-285
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-279
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-280
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-282
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-283
	3TB HDD 1 x 3 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-336

NOTE:

- All hard drives within a RAID array should be of the same capacity.

4.2.3 3.5-inch Drive with RAID 0/1 Controller with 256 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	**RAID Controller (256MB, RAID 0/1)** LSI MegaRAID SAS 9264-8i RAID 0/1, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-129
RAID BBU Recommended	**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-123
Cable Required	**Internal SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
HDD Cage	**3.5-inch HDD Cage** 4 x 3.5-inch hot plug hard drive bays	(Standard)
HDD 4 slots available	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-285
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-279
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-280
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-282
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-283

NOTE:

- All hard drives within a RAID array should be of the same capacity.

4.2.4 3.5-inch Drive with RAID 5/6 Controller with 256 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	**RAID Controller (256MB, RAID 0/1/5/6)** LSI MegaRAID SAS 9264-8i RAID 0/1/5/6/10/50, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-130
RAID BBU Recommended	**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-123
Cable Required	**Internal SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
HDD Cage	**3.5-inch HDD Cage** 4 x 3.5-inch hot plug hard drive bays	(Standard)
HDD 4 slots available	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-285
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-279
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-280
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-282
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-283

NOTE:

- All hard drives within a RAID array should be of the same capacity.

4.2.5 3.5-inch drive with RAID 5/6 Controller with 512 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	**RAID Controller (512MB, RAID0/1/5/6)** Promise SuperTrak EX8760T-512 RAID 0/1/5/6/10/50, 512MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-134
RAID BBU Recommended	**RAID Battery Backup Unit** for Promise SuperTrak EX8760T and EX8768	N8103-140
Cable Required	**Internal SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
HDD Cage	**3.5-inch HDD Cage** 4 x 3.5-inch hot plug hard drive bays	(Standard)
HDD 4 slots available	**160GB HDD** 1 x 160 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-285
	250GB HDD 1 x 250 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-279
	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-280
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-282
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-283
	3TB HDD 1 x 3 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-336

NOTE:

- All hard drives within a RAID array should be of the same capacity.

4.2.6 2.5-inch Drive with On-board SATA Controller

Category		Product Name / Description	Part Number
Storage Controller		**On-board SATA Controller** 4 x SATA ports, RAID 0/1/10 capable	(Standard)
Cable Required		**Internal SATA Cable** 1x mini-SAS to 4x SATA	(Standard)
HDD Cage		**2.5-inch HDD Cage** 6 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 4 slots available	**SATA**	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE

- The on-board SATA RAID controller is not supported on Linux operating systems.
- All hard drives within a RAID array should be of the same capacity.

4.2.7 Up to four 2.5-inch Drive with RAID 0/1 Controller with 128 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (128MB, RAID 0/1)** Promise SuperTrak TX8760T-128 RAID 0/1, 128MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-128
RAID BBU Recommended		**RAID Battery Backup Unit** for Promise SuperTrak EX8760T and EX8768	N8103-140
Cable Required		**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
HDD Cage		**2.5-inch HDD Cage** 6 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 4 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported.

4.2.8 Up to four 2.5-inch Drive with RAID 0/1 Controller with 256 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (256MB, RAID 0/1)** LSI MegaRAID SAS 9264-8i RAID 0/1, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-129
RAID BBU Recommended		**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-123
Cable Required		**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
HDD Cage		**2.5-inch HDD Cage** 6 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 4 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported

4.2.9 Up to four 2.5-inch Drive with RAID 5/6 Controller with 256 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (256MB, RAID 0/1/5/6)** LSI MegaRAID SAS 9264-8i RAID 0/1/5/6/10/50, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-130
RAID BBU Recommended		**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-123
Cable Required		**Internal SAS/SATA Cable** 1x mini-SAS to 4x Fixed SAS	K410-240(00)
HDD Cage		**2.5-inch HDD Cage** 6 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 4 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported.

4.2.10 Up to four 2.5-inch Drive with RAID 5/6 Controller with 512 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (512MB, RAID0/1/5/6)** Promise SuperTrak EX8760T-512 RAID 0/1/5/6/10/50, 512MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-134
RAID BBU Recommended		**RAID Battery Backup Unit** for Promise SuperTrak EX8760T and EX8768	N8103-140
Cable Required		**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
HDD Cage		**2.5-inch HDD Cage** 6 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 4 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported

4.2.11 Up to six 2.5-inch Drive with RAID 0/1 Controller with 128 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (128MB, RAID 0/1)** Promise SuperTrak TX8760T-128 RAID 0/1, 128MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-128
RAID BBU Recommended		**RAID Battery Backup Unit** for Promise SuperTrak EX8760T and EX8768	N8103-140
Cable Required	1 to4 HD	**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
	5 to6 HD	**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-204(00)
HDD Cage		**2.5-inch HDD Cage** 6 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 6 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported

4.2.12 Up to six 2.5-inch Drive with RAID 0/1 Controller with 256 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (256MB, RAID 0/1)** LSI MegaRAID SAS 9264-8i RAID 0/1, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-129
RAID BBU Recommended		**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-123
Cable Required	1 to4 HD	**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
	5 to6 HD	**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-204(00)
HDD Cage		**2.5-inch HDD Cage** 6 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 6 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported

4.2.13 Up to six 2.5-inch Drive with RAID 5/6 Controller with 256 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller (256MB, RAID 0/1/5/6)** LSI MegaRAID SAS 9264-8i RAID 0/1/5/6/10/50, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-130
RAID BBU Recommended		**RAID Battery Backup Unit** for LSI MegaRAID SAS 9264	N8103-123
Cable Required	1 to4 HD	**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
	5 to6 HD	**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-204(00)
HDD Cage		**2.5-inch HDD Cage** 6 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 6 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported.

4.2.14 Up to six 2.5-inch Drive with RAID 5/6 Controller with 512 MB Cache

Category		Product Name / Description	Part Number
Storage Controller Required		**RAID Controller(512MB, RAID0/1/5/6)** Promise SuperTrak EX8760T-512 RAID 0/1/5/6/10/50, 512MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-134
RAID BBU Recommended		**RAID Battery Backup Unit** for Promise SuperTrak EX8760T and EX8768	N8103-140
Cable Required	1 to4 HD	**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-240(00)
	5 to6 HD	**Internal SAS/SATA Cable** 1x mini-SAS to 4x SATA	K410-204(00)
HDD Cage		**2.5-inch HDD Cage** 6 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 6 slots available	**SAS**	**146.5GB HDD** 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
	SATA	**160GB HDD** 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD	**100GB SSD** 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- Mixing SAS and SATA hard drives in the same system is not supported

5 Optical Drive

Category	Product Name / Description	Part Number
Internal **1 slot available**	**Internal Slim DVD-ROM drive** Slim DVD-ROM drive	N8151-100
	Internal DVD Super Multi Drive Slim DVD Super Multi drive, not including writing software	N8151-104F
External	**External DVD-ROM drive** Slim DVD-ROM drive, Bus powered, 0.8 A required	N8160-85

NOTE:

- Up to 1 optical drive can be connected.

6 Internal Flash Memory

Available socket: 1

Product Name / Description	Part Number
Internal Flash Memory Internal flash memory to enable software and tools in the EXPRESSBUILDR DVD without DVD media **NOTE:** Before use, software and tools must be copied from the EXPRESSBUILDER DVD to the flash memory. The following operations can be performed with the flash memory: - Installation of Windows server with express setup - Installation of Starter Pack—the package of NEC qualified drivers and system setting tools - Installation of NEC ESMPRO Agent and Universal RAID Utility - Performance of the Test and Diagnosis Tool	N8115-07

7 PCI Card

7.1 LAN Controller

Category		Product Name / Description	Part Number
GbE		**1000BASE-T Adapter (2ch)** Broadcom NetXtreme II 5709 Dual port Network Interface Card PCIe x4, LP / FH **NOTE:** Teaming and bonding features across the standard LAN and the LAN controller are supported on Windows Server 2003R2 / 2008 / 2008R2 and Red Hat Linux 5.x/6.x Operating system. Up to 2 teams per system and 2 ports per team is supported in the teaming and bonding feature.	N8104-134
10GbE	**Ctrlr**	**10GBASE Adapter (SFP+/2ch)** Broadcom NetXtreme II BCM957711 10G SFP+ Dual Port Network Interface Card PCIe 2.0 x8, LP / FH **NOTE**: N8104-129 SFP+ Module is required to connect with an optical cable. Up to 2 SFP+ Modules can be installed. 1 team per 1 system is supported in teaming feature.	N8104-128
	Module	**SFP+ Module (10G-SR)** 1x SFP+ Module for N8104-128	N8104-129

7.2 External RAID Controller

Category	Product Name / Description	Part Number
Controller	**RAID Controller (512MB, RAID0/1/5/6)** Promise SuperTrak EX8768 RAID 0/1/5/6, 512MB, Ext. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-135
RAID BBU	**RAID Battery Backup Unit** for Promise SuperTrak EX8760T and EX8768	N8103-140

7.3 Fibre Channel/SAS/SCSI Controller

Category	Product Name / Description	Part Number
Fibre Channel	**Fibre Channel Controller (1ch)** Emulex LightPulse LPe1250-F8 Host Bus Adapter 8Gb/s, Optical, PCIe 2.0 x8, LP / FH	N8190-153
	Fibre Channel Controller (2ch) Emulex LightPulse LPe12002-M8 Host Bus Adapter 8Gb/s, Optical, PCIe 2.0 x8, LP / FH	N8190-154
	Fibre Channel Controller (1ch) Emulex LightPulse LPe1150-F4 Host Bus Adapter 4Gb/s, Optical, PCIe x4, LP / FH	N8190-127
	Fibre Channel Controller (2ch) Emulex LightPulse LPe11002-M4 Host Bus Adapter 4Gb/s, Optical, PCIe 2.0 x4, LP / FH	N8190-131
SAS	**SAS Controller** LSI SAS3442E-R Host Bus Adapter 3Gb/s SAS, Int. 4 / Ext. 4, SFF-8484 / SFF8470, PCIe x8, LP/FH	N8103-104A
	SAS Controller LSI SAS9212-4i4 Host Bus Adapter 6Gb/s SAS, Int. 4 / Ext. 4, 7-pin SATA / SFF-8088, PCIe 2.0 x8, LP/FH	N8103-142

7.4 Serial Port Adapter

Product Name / Description	Part Number
Serial port adapter Serial port fixed to PCI bracket	N8117-01A

8 Add-on Components

8.1 17-inch LCD Console Drawer

Category		Product Name / Description	Part Number
Drawer w/ KVM	**Drawer**	**17inch LCD Console Unit (1U/8port)** 17-inch LCD, US 83-keys Keyboard, Optical mouse, 8 port KVM switch, 1U height	N8143-69F
	Cable	**Switch Unit Connection Cable Set (USB,1.8m)** 1.8 m, 1x 15-pin mini D-sub to 1x 15-pin mini D-sub / 1x 4-pin USB A	K410-118(1A)
		Switch Unit Connection Cable Set (USB,3m) 3 m, 1x 15-pin mini D-sub to 1x 15-pin mini D-sub / 1x 4-pin USB A	K410-118(03)
		Switch Unit Connection Cable Set (USB,5m) 5 m, 1x 15-pin mini D-sub to 1x 15-pin mini D-sub / 1x 4-pin USB A	K410-118(05)
Drawer w/o KVM	**Drawer**	**17inch LCD Console Unit 1U** 17-inch LCD, US 83-keys Keyboard, Optical mouse, 1U height, 1x 4-pin USB B to 4-pin USB A cable 2m, 1x PS/2 Y-splitter cable 2m, 15-pin mini D-sub VGA cable 2m	N8143-76F

8.2 KVM Switch

Category	Product Name / Description	Part Number
KVM Switch	**Server Switch Unit (8 server)** 1U USB 8 port KVM switch	N8191-10F
Cable	**Switch Unit Connection Cable Set (USB,1.8m)** 1.8 m, 1x 15-pin mini D-sub to 1x 15-pin mini D-sub / 1x 4-pin USB A	K410-118(1A)
	Switch Unit Connection Cable Set (USB,3m) 3 m, 1x 15-pin mini D-sub to 1x 15-pin mini D-sub / 1x 4-pin USB A	K410-118(03)
	Switch Unit Connection Cable Set (USB,5m) 5 m, 1x 15-pin mini D-sub to 1x 15-pin mini D-sub / 1x 4-pin USB A	K410-118(05)

8.3 Server Management License

The server integrates the EXPRESSSCOPE Engine 3 as standard. Refer to **Server Management** for the standard management features. For more extensive remote KVM and remote media features, choose the following kit.

Product Name / Description	Part Number
Remote KVM and Media License kit License for one server. Remote console and remote media are enabled regardless of OS status. Remote KVM: - Displays a graphics console on the web browser of the remote terminal (PC/server). - Controls keyboard and mouse via the remote terminals' web browser Remote media: Enables the user to use the CD / DVD / FD / Flash memory of the remote terminals (PC/server) as if accessing the local drives.	N8115-04

8.4 Flash FDD

Choose the Flash FDD if you need to prepare an alternative device for a floppy drive.

Product Name / Description	Part Number
Flash FDD USB flash emulating USB floppy disk, Native capacity 1.44 MB	N8160-86

8.5 Front Bezel

Product Name / Description	Part Number
Front Bezel Front bezel for R110d-1E	N8146-20F

References

Note for Ordering

Parts number provided may be needed to modify by country/region when you order the products.

For example, the operable parts number for N8100-1738F in EMEA is N8100-1730F-O, adding "-O", the country-specific identifier for EMEA, after the parts number.

Please consult our sales representative for your country identifier.

Server Management

The EXPRESSSCOPE Engine 3, integrated into the server, provides superior remote control and system management features listed in the table below.

		Standard	With Remote KVM and Media License kit
Hardware monitoring	Temperature/voltage/power/ fan /degeneration (memory/hard drive)	✓	✓
	Hardware event log collection	✓	✓
Boot monitoring	Booting, BIOS/POST stall, OS stall, shutdown	✓	✓
Alerting	HW error, Boot error and OS panic (by SNMP, E-Mail)	✓	✓
Remote KVM (via LAN)	POST/BIOS setup, DOS utility	✓	✓
	Panic screen, Boot screen	✓	✓
	Text-based screen (OS console)	✓	✓
	GUI-based screen (OS console)	-	✓
Remote control (via LAN)	Remote reset/power on-off/ dump	✓	✓
	Configure power capping setting [1]	✓	✓
	Configure BIOS setting (items limited)	✓	✓
	OS shutdown	✓	✓
	Remote media (CD/DVD/FD)	-	✓
	Server Management Command Line Protocol (DMTF compliant)	✓	✓
	Remote control via Web browser (without dedicated app)	✓	✓
	Remote batch	✓	✓
	Scheduling (without UPS)	✓	✓
Maintenance	Save/restore BIOS/BMC setting to/from a dedicated flash memory	✓	✓
Others	Set automatic IP address via DNS/DHCP	✓	✓
Remote wakeup	Wake On LAN, Wake On Ring	✓	✓
Centralized management	Monitoring and control of multiple servers	✓	✓
Industry standard	IPMI	2.0	2.0

[1] The power capping feature is supported by Xeon processor.

OS Support Matrix for PCI Cards

Part Number	Product Name	WS 2008R2	WS 2008	WS 2008 x64	WS 2003R2	WS 2003R2 x64	RHEL 5	RHEL 5 x64	RHEL 6	RHEL 6 x64
N8103-128	RAID Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-129	RAID Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-130	RAID Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-134	RAID Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-135	RAID Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-104A	SAS Controller, 3 Gb/s	✓	✓	✓	✓	✓	✓	✓	-	-
N8103-142	SAS Controller, 6 Gb/s	✓	✓	✓	✓	✓	✓	✓	-	-
N8190-153	Fibre Channel Controller	✓	✓	✓	✓	✓	✓	✓	-	-
N8190-154	Fibre Channel Controller (2ch)	✓	✓	✓	✓	✓	✓	✓	-	-
N8190-127	Fibre Channel Controller	✓	✓	✓	✓	✓	✓	✓	-	-
N8190-131	Fibre Channel Controller (2ch)	✓	✓	✓	✓	✓	✓	✓	-	-
N8104-134	1000BASE-T Adapter (2ch)	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8104-128	10GBASE Adapter (SFP+/2ch)	✓	✓	✓	-	-	✓	✓	✓	✓

Supporting PCI cards and Installable Slots

Parts Number	Product Name	Slots		Remarks
	Slot # :	#1	#2	
	PCI Slot:	X8	X8	
	Card height:	Full-Height		
	Slot type:	X16	x8	
	Installable card length (mm) :	200 (LP)		
N8103-104A	SAS Controller [PCIe x8]	✓	✓	
N8103-142	SAS Controller [PCIe 2.0 x8]	✓	✓	
N8103-128	RAID Controller (128MB, RAID 0/1) [PCIe 2.0 x8]	-	✓	
N8103-129	RAID Controller (256MB, RAID 0/1) [PCIe 2.0 x8]	-	✓	
N8103-130	RAID Controller (256MB, RAID 0/1/5/6) [PCIe 2.0 x8]	-	✓	
N8103-134	RAID Controller (512MB, RAID 0/1/5/6) [PCIe 2.0 x8]	-	✓	
N8103-135	RAID Controller (512MB, RAID 0/1/5/6) [PCIe 2.0 x8]	✓	✓	
N8190-127	Fibre Channel Controller [PCIe x4]	✓	✓	
N8190-153	Fibre Channel Controller [PCIe 2.0 x8]	✓	✓	
N8190-131	Fibre Channel Controller (2ch) [PCIe x4]	✓	✓	
N8190-154	Fibre Channel Controller (2ch) [PCIe 2.0 x8]	✓	✓	
N8104-134	1000BASE-T adapter(2ch) [PCIe x4]	✓	✓	
N8104-128	10GBASE Adapter(SFP+/2ch) [PCIe 2.0 x8]	✓	✓	
N8117-01A	Serial Port Adapter	✓	✓	

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For hard drive capacity measurements, 1 GB = 1 billion bytes. Actual formatted capacity is less.

Revision History

Revision	Date	Description
2.3	February 13, 2012	**Part number changed:** 146.5GB 2.5-inch SAS HDD / N8150-374 300GB 2.5-inch SAS HDD / N8150-375 450GB 2.5-inch SAS HDD / N8150-376 600GB 2.5-inch SAS HDD / N8150-377
2.2	January 23, 2012	**Part number changed:** 73.2GB 2.5-inch SAS HDD / N8150-378 146.5GB 2.5-inch SAS HDD / N8150-379
2.1	January 11, 2012	**New products added:** Pentium G630 / N8101-529F **Discontinued products removed:** Pentium G620 / N8101-505F SCSI Controller / N8103-107 **Others:** Correct incorrect information in internal drive configuration using 3TB 3.5-inch SATA drive
2.0	December 14, 2011	**New products added:** 3TB HDD / N8150-336 **Discontinued products removed:** 1GB Memory Kit / N8102-415F
1.3	October 18, 2011	**Others:** Correct incorrect information in Specification, 3 Memory, 7.1 LAN Controller, 7.3 Fibre Channel/SAS/SCSI Controller, 8.1 17-inch LCD Console Drawer, and References.
1.2	August 15, 2011	**Others:** Correct incorrect part number for the cable in section 4.2.6 Add the note for the on-board SATA controller
1.1	August 3, 2011	**Others:** Correct incorrect description for 8GB Memory Kit
1.0	July 28, 2011	Initial release